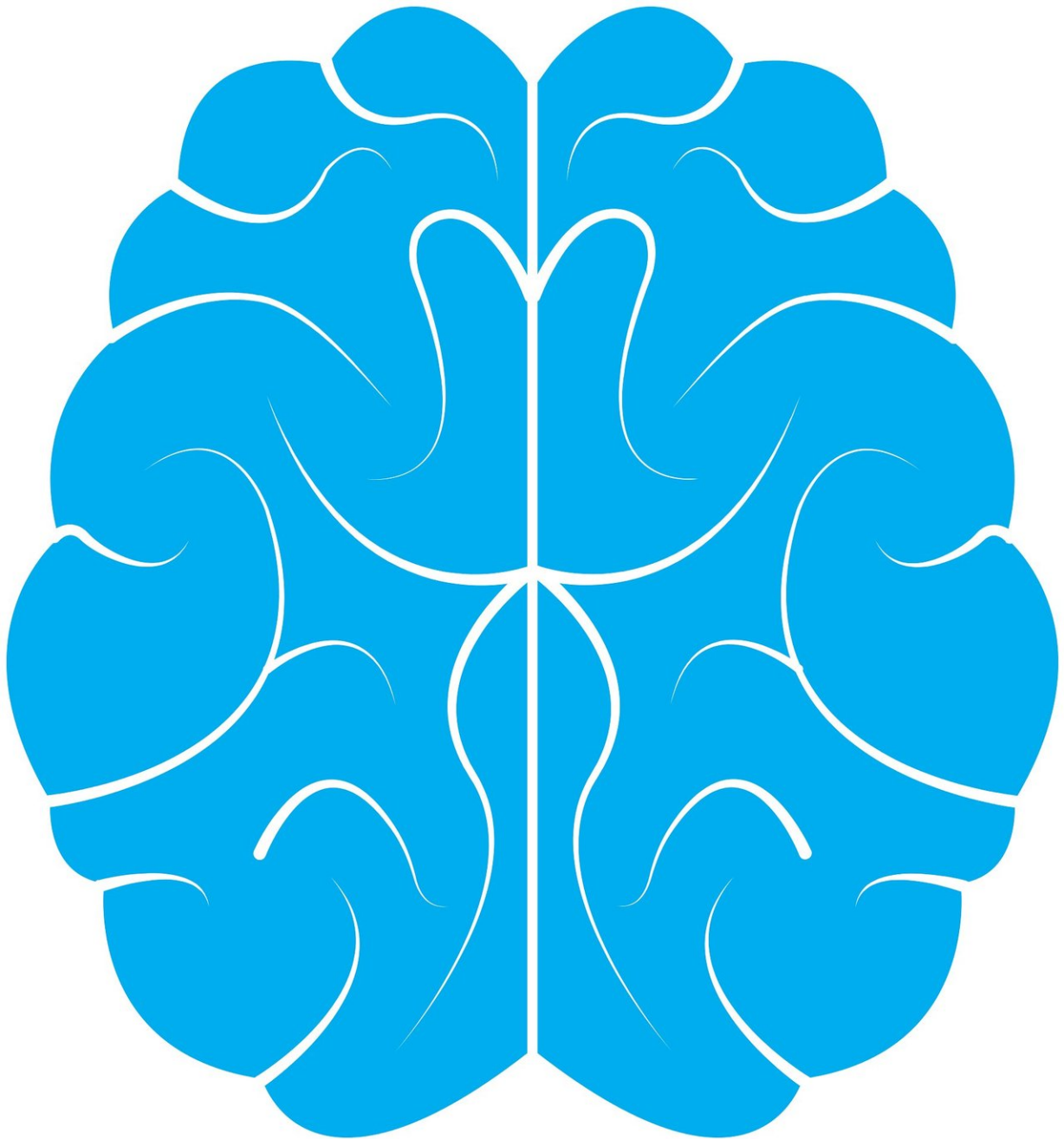


Brain changes may be linked to unexplained motor symptoms

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A new study finds that people who have movement problems, symptoms that cannot be explained by an underlying disease, may have chemical changes in specific areas of the brain. The study is published in the June 5, 2019, online issue of *Neurology*, the medical journal of the American Academy of Neurology. These symptoms, which include tremors, muscle contractions or problems with walking, are called functional or psychogenic motor symptoms.

"These results bring new perspectives to the problem of functional motor symptoms, which have mainly been considered [psychological problems](#)," said study author Alberto Priori, MD, Ph.D., of the "Aldo Ravelli" Research Center at the University of Milan in Italy. "These findings suggest that these abnormal chemical changes in the [brain](#) could play a key role in functional motor symptoms, ultimately leading to the abnormal movements."

Priori said that drugs could potentially be developed that could target these [chemical changes](#) in the brain to help treat functional motor symptoms.

The study compared 10 [people](#) with functional motor symptoms to 10 people with no health problems. Researchers used a brain scan called magnetic resonance spectroscopy to look at biochemical processes within the brain. Participants also took tests for depression, anxiety, quality of life and a condition called alexithymia, which is a failure to identify and describe emotions in oneself.

The people with functional motor symptoms had increased levels of glutamate and glutamine in the limbic areas of the brain, with levels approximately four times higher than in the healthy people. Glutamate and glutamine were however normal outside the limbic areas, thus demonstrating that the finding is specific for these regions.

On the psychological tests, the people with functional motor symptoms had abnormal scores while the people without symptoms had normal scores. Two of the people with symptoms had major depression disorder and one had panic disorder. The people with symptoms had [high scores](#) in depression, anxiety, alexithymia and low scores for quality of life. For example, those with symptoms had an average score of 9.0 on the depression test, which indicates mild depression, compared to an average score of 1.4 for those with no symptoms, which indicates no depression.

The researchers also found that higher neurochemical abnormalities in the brain were associated with more severe motor, anxiety and alexithymia symptoms.

"Because the abnormal increase in glutamate and glutamine may play a role in functional [motor](#) symptoms, drugs modulating glutamatergic activity, such as D-cycloserine, memantine or ketamine, could potentially offer a strategy to help manage these disabling disorders," Priori said.

The main limitation of the study is the small number of participants.

Provided by American Academy of Neurology

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